

Camino Selva Residential Project
Rancho Santa Fe
(TM5406RPL2), (ER04-08-042)
Traffic Impact Study

July 2007

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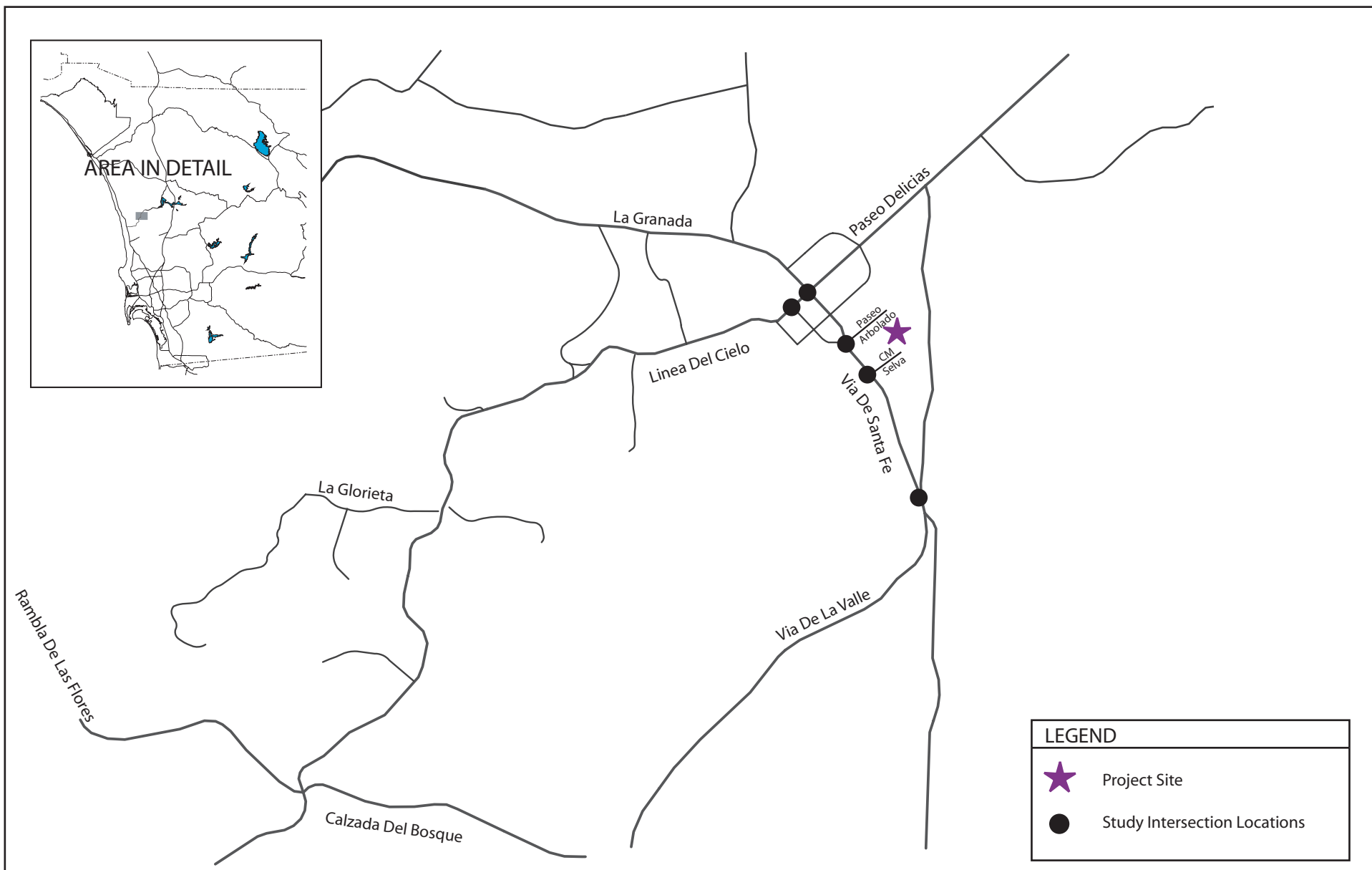
1.0 Introduction

This traffic study has been prepared to evaluate the potential impacts of the proposed Camino Selva residential project located in the unincorporated Rancho Santa Fe area of the County of San Diego. The Camino Selva residential project is comprised of a six detached residential units. Katz, Okitsu & Associates was retained by Los Arbolados – Camino Selva to analyze the traffic impacts of the proposed development. Figure 1 shows the project vicinity and study area for this analysis. Figure 2 shows the project site plan for this analysis.

Project Description

This traffic study is based on the need to perform a cumulative analysis given the recent exemption from the California Environmental Quality Act (CEQA) of “de minimus effects” which were removed from the State law as a result of a lawsuit. As a result, the County of San Diego has recommended that all discretionary projects be reviewed for cumulative impacts. The Camino Selva residential project falls within this recommendation. The proposed project would generate a total of 60 daily trips, with 4 occurring in the AM peak hour and 6 occurring in the PM peak hour. The project is located off of Via De Santa Fe, just south of the village area. All six units of the project have direct access from Camino Selva. The project would access the regional street network via the intersection of Via De Santa Fe and Via De La Valle.

In order to gain approval for the project, a traffic study must be prepared to fulfill the requirements of the County of San Diego Draft *Guidelines for Determining Significance*. This project will not generate more than 2,400 daily trips and will not generate more than 200 peak hour trips. Therefore, this project is not required to conform to the Congestion Management Program, and a detailed analysis of Regionally Significant Arterials and is also not required.



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Figure 1
Project Vicinity & Study Area



2.0 Methodologies

This chapter documents the methodologies and assumptions used to conduct the circulation impact analysis for the Camino Selva residential project. This section contains the following background information:

- Study timeframes
- Study area description
- Capacity analysis methodologies

Study Timeframes

This report presents an analysis of the following timeframes:

- Existing
- Existing plus Cumulative (Open and Closed Discretionary Projects) with and without Project

Project Study Area

The following intersections and roadway segments have been identified for analysis:

Study Intersections

- 1) Via De Santa Fe at Via De La Valle
- 2) Via De Santa Fe at Camino Selva
- 3) Via De Santa Fe at Paseo Arbolado
- 4) Via De Santa Fe at Paseo Delicias
- 5) La Granada at Paseo Delicias

Study Roadway Segments

- 1) Via De Santa Fe between Via De La Valle and Camino Selva
- 2) Via De Santa Fe between Camino Selva and Paseo Arbolado
- 3) Via De Santa Fe between Paseo Arbolado and Paseo Delicias
- 4) La Granada between Paseo Arbolado and Paseo Delicias

This project study area is generally based on the assumed project trip distribution and assignment. The trip distribution and assignment determines how much project traffic is attributable to each link in the roadway network and which intersections they affect.

Analysis Methodologies

This section presents a brief overview of traffic analysis methodologies and concepts used in this study. Street system operating conditions are typically described in terms of “level of service.” Level of service is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. Level of service (LOS) ranges from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion). A more detailed description of the concepts described in this section is provided in Appendix A, Appendix A-1 of this document.



Roadway Segment Capacity Analysis

The City of San Diego has published daily traffic volume standards for roadways within its jurisdiction. To determine existing service levels on study area roadway segments we compared the appropriate average daily traffic thresholds for level of service, the daily capacity of the study area roadway segments, and the existing and future volumes in the study area. The thresholds for determining level of service used in this analysis are summarized in Appendix A.

The values shown in Appendix A are not intended to serve as an exact description of the actual operating level of service on a particular roadway segment. The capacity of roadway facilities is affected by a number of factors, including pavement width, access to cross streets and driveways, intersection signal timing, geometry, and on-street parking. The actual functional capacity is based on the ability of arterial intersections to accommodate peak hour volumes.

Intersection Capacity Analysis

The Highway Capacity Manual analysis method for evaluating unsignalized, minor street stop intersections is based on the average total delay for each impeded movement. As used here, total delay is defined as the total elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line. This time includes the time required for the vehicle to travel from the last-in-queue to the first-in-queue position. The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. Appendix A summarizes the level of service criteria for minor-street stop controlled intersections.

Significance Analysis

To determine project impacts, the County of San Diego formally adopted significance criteria for determining project impacts in the Guidelines for Determining Significance and Report Format and Content Requirements, dated September 26, 2006 (hereinafter, the "September 26, 2006 Guidelines") based on allowable increases in road segment ADTs, intersection peak hour trips and intersection seconds of delay which become more stringent as level of service worsens. The acceptable level of service for roadway segments and intersections in the County San Diego is level of service D. Where the roadway segment or intersection is forecast to operate at LOS E or F, the allowable increases are shown in Table 1.

Should the project exceed the allowable ADT on segments, the determination of significance (Yes/No) is shown in **bold type** to indicate a significant project impact that requires mitigation. Where intersections are forecast to operate at LOS E or F and the thresholds set in Table 1 are exceeded, the determination of significance (Yes/No) is shown in **bold type** to indicate a significant impact that requires mitigation.



Table 1
Measures of Significant Project Impacts to Congestion
Allowable Increases on Congested Roads

Road Segments

<i>Roadway Segment LOS</i>	<i>2-Lane Road</i>	<i>4-Lane Road</i>	<i>6-Lane Road</i>
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT

Intersections

<i>Intersection LOS</i>	<i>Signalized</i>	<i>Unsignalized</i>
LOS E	Delay of 2 seconds	20 peak hour trips on a critical movement
LOS F	Delay of 1 second, or 5 peak hour trips on a critical movement	5 peak hour trips on a critical movement

Source: County of San Diego Draft *Guidelines for Determining Significance*

Traffic Count Data

Existing AM and PM peak period counts (7:00 a.m.-9:00 a.m., 4:00 p.m.-6:00 p.m.) were performed in July 2003 by Traffic Data Service Southwest. Existing average daily traffic (ADT) volumes were estimated from PM peak hour counts, assuming the PM peak hour is approximately 10% of the ADT. All count data used in this study can be found in Appendix B.



3.0 Existing Conditions

Existing Circulation Network

Figure 3 illustrates the local and regional circulation network near the project site, including existing lane channelization and traffic control for study area intersections. The following roadways run through the project study area:

La Granada

La Granada is a two-lane light collector that runs northwest from Via De Santa Fe towards Encinitas.

Linea Del Cielo

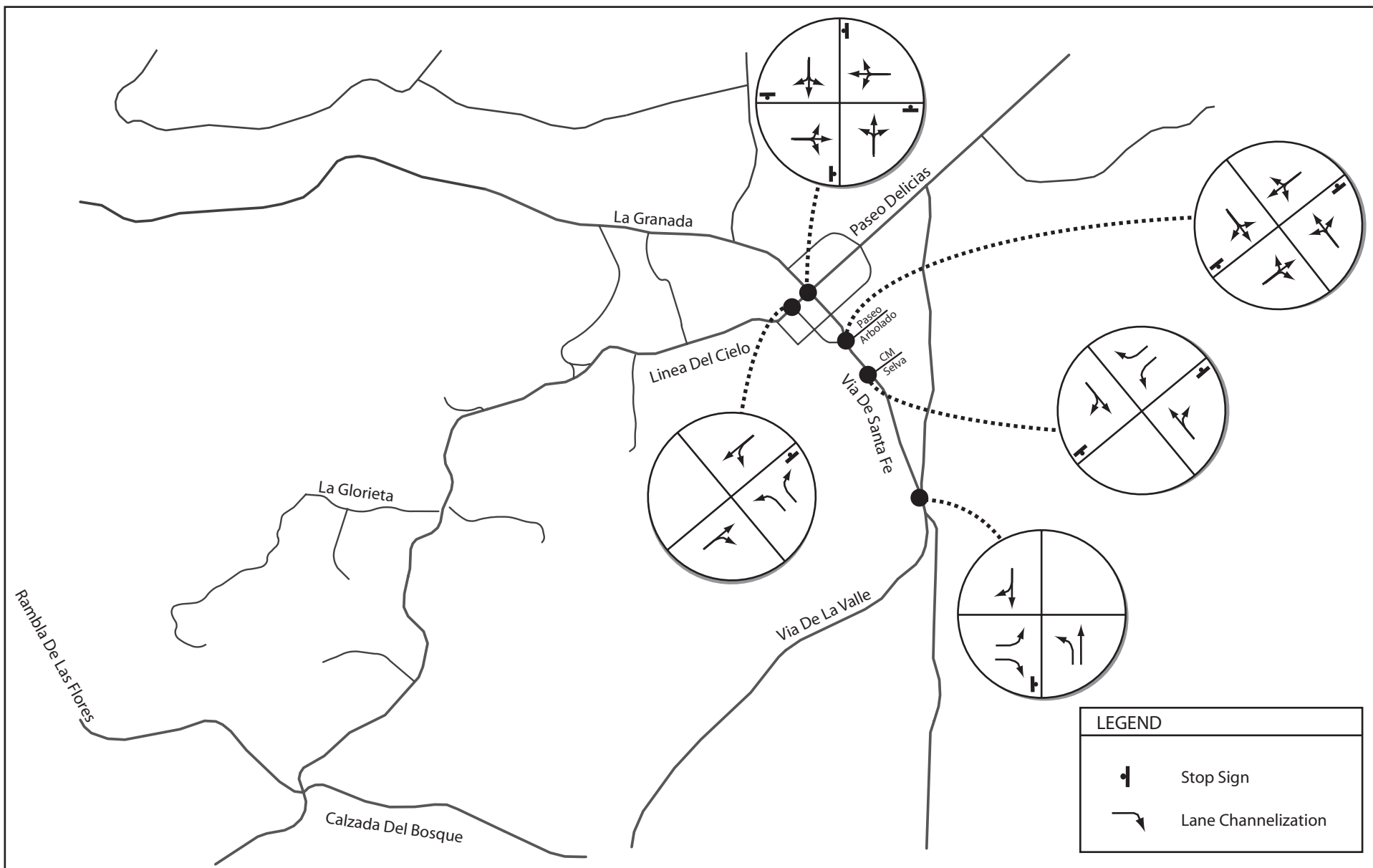
Linea Del Cielo is a two-lane light collector that runs generally west towards Solana Beach, where much of the local shopping is done by the residents of Rancho Santa Fe.

Via de la Valle

Via de la Valle is a two-lane light collector that runs east to west. It provides access to Interstate 5, which is southwest of the project.

Via de Santa Fe

Via De Santa Fe, which is not mentioned in San Diego County's Circulation Element, is a two-lane road that runs north-south from El Apajo to La Granada. It provides project access to Via de la Valle.



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Figure 3

Intersection Geometry and Traffic Control



Daily Roadway Segment Performance

The *County of San Diego Circulation Element* contains daily traffic volume standards for roadways within the County. To determine existing service levels on study area roadway segments we compared the adopted average daily traffic thresholds for level of service, the daily capacity of the study area roadway segments, and the existing volumes in the study area. When evaluating traffic conditions, level of service A-D is considered acceptable for areas where further improvement in level of service is not feasible or practical. The thresholds for determining level of service on County of San Diego roadways are summarized in Appendix A. The following table summarizes the existing daily operating conditions for the study segments. Figure 4 graphically presents the results of this analysis.

As shown in Table 2, under existing conditions, all study segments operate at LOS C or better.

Table 2
Existing Daily Roadway Segment Conditions

<i>Roadway Segment</i>	<i>Classification/ Lanes</i>	<i>LOSE Capacity</i>	<i>Average Daily Traffic (ADT)</i>	<i>Volume to Capacity Ratio</i>	<i>Level of Service</i>
Via De Santa Fe between Via De La Valle and Camino Selva	Rural Light Collector / 2	16,200	4,302	0.27	C
Via De Santa Fe between Camino Selva and Paseo Arbolado	Rural Light Collector / 2	16,200	3,709	0.23	B
Via De Santa Fe between Paseo Arbolado and Paseo Delic	Rural Light Collector / 2	16,200	3,709	0.23	B
La Granada between Paseo Arbolado and Paseo Delicias	Rural Light Collector / 2	16,200	5,961	0.37	C



Peak Hour Intersection Performance

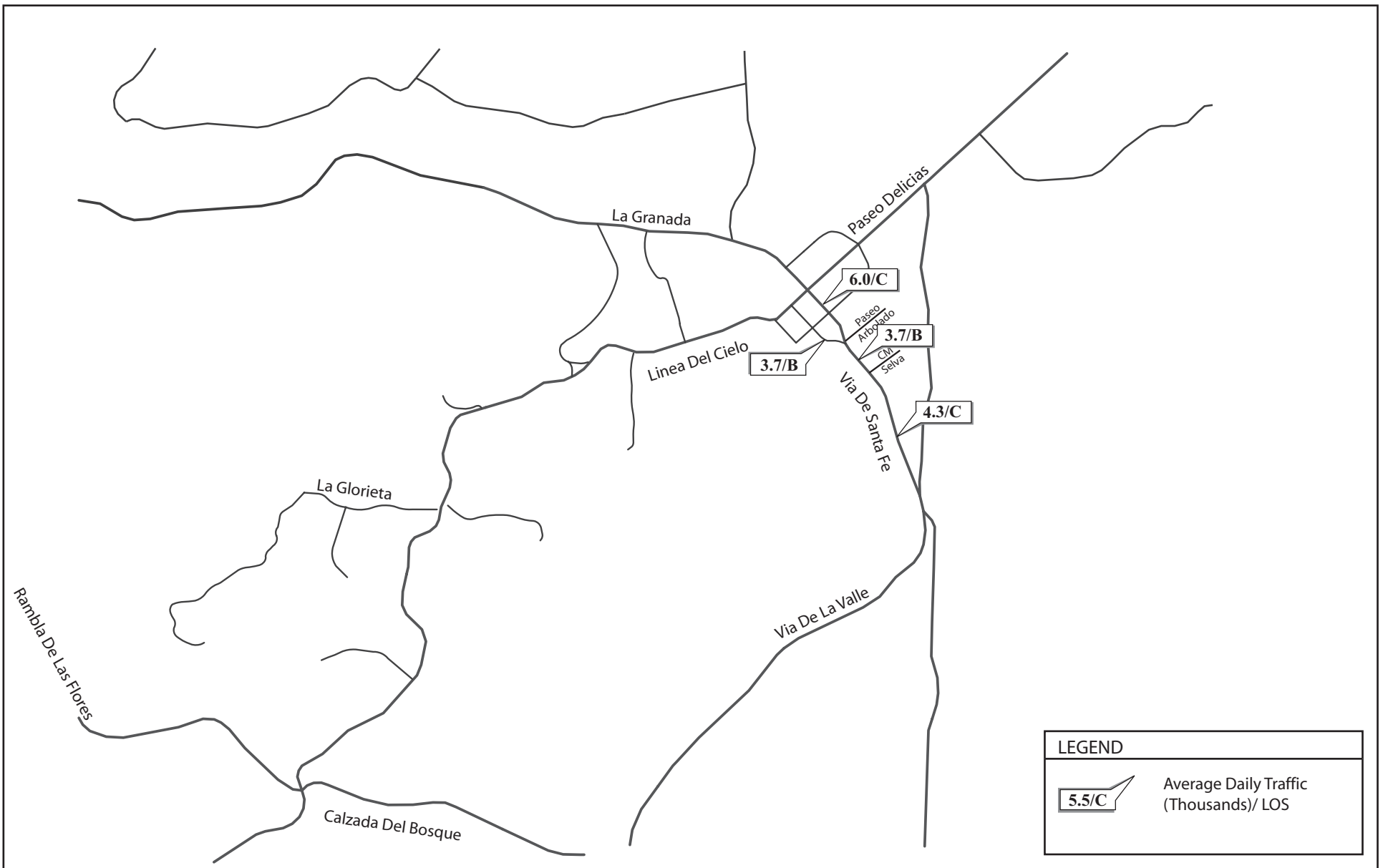
Peak hour intersection performance was evaluated using the procedures outlined in the 2000 *Highway Capacity Manual* (HCM), a publication of the Transportation Research Board. Level of service A to D is considered acceptable for peak hour intersection operations in the County of San Diego. Appendix A contains a summary of this analysis method as well as the level of service criteria used.

As shown in Table 3, under existing conditions, all study intersections operate at LOS C or better for both AM and PM peak hours except for Via De Santa Fe at Via De La Valle, which operates at LOS E in that AM peak hour

Table 3
Existing Peak Hour Intersection Conditions

<i>Intersection</i>	<i>AM Peak Hour</i>		<i>PM Peak Hour</i>	
	<i>Intersection Delay (sec.)</i>	<i>Level of Service</i>	<i>Intersection Delay (sec.)</i>	<i>Level of Service</i>
Via De Santa Fe at Via De La Valle*	45.6	E	14.5	B
Via De Santa Fe at Camino Selva*	14.3	B	12.5	B
Via De Santa Fe at Paseo Arbolado*	12.2	B	14.7	B
Via De Santa Fe at Paseo Delicias*	18.1	C	13.1	B
La Granada at Paseo Delicias*	12.1	B	11.8	B

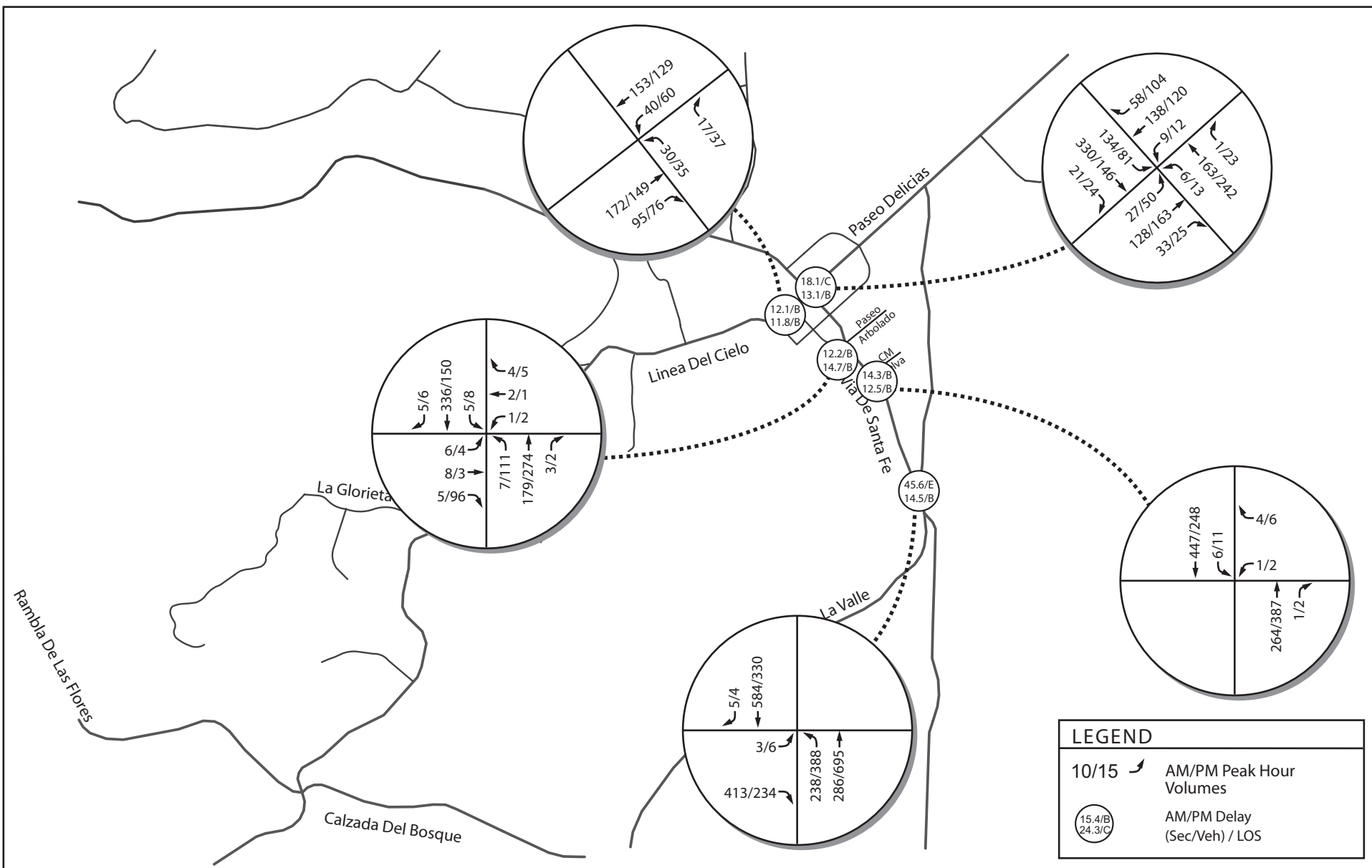
*Unsignalized intersection



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Figure 4

Existing Daily Roadway Segment Conditions



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Figure 5

Existing Peak Hour Intersection Conditions



4.0 Proposed Project Traffic

Project Trip Generation

Trip generation is a measure or forecast of the number of trips that begin or end at the project site. All or part of these trips will result in traffic increases on the streets where they occur. The traffic generated is a function of the extent and type of development proposed for the site.

Vehicular traffic generation characteristics for projects are estimated based on rates in the *SANDAG (Not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002)*. This manual provides standards and recommendations for the probable traffic generation of various land uses based upon local, regional and nation-wide studies of existing developments in comparable settings. Table 4 summarizes the driveway trips generated by the proposed project.

As shown in Table 4, the proposed project would add 60 trips to the circulation network, with 4 occurring in the AM peak hour and 6 occurring in the PM peak hour. The project impacts are analyzed under the existing plus cumulative projects scenario.

Table 4
Trip Generation for the Proposed Project

<i>Land Use</i>	<i>Intensity</i>	<i>Trip Rate</i>	<i>Per</i>	<i>Daily Trips</i>	<i>AM Peak Hour Trips</i>	<i>In</i>	<i>Out</i>	<i>PM Peak Hour Trips</i>	<i>In</i>	<i>Out</i>
Single Family Residential					0.08	30%	70%	0.10	70%	30%
	6	10	DU	60	6	2	4	6	4	2

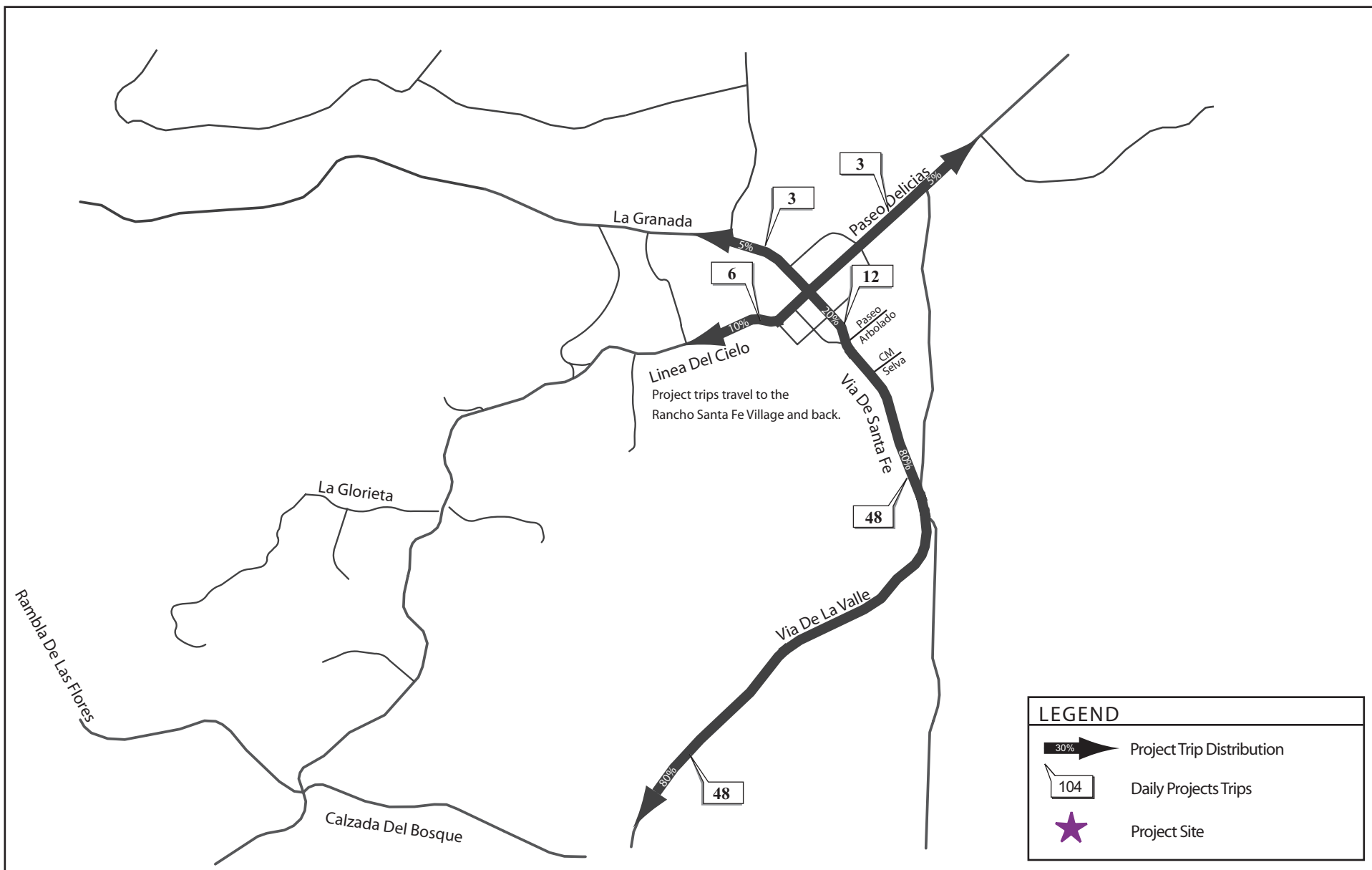
Source: *SANDAG (Not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002)*.

Project Access

The project is located between Camino Selva and Paseo Arbolado, east of Via De Santa Fe. The proposed project will take access from Camino Selva via a private driveway into the project site. The project would access the regional street network by way of Via de la Valle and Linea Del Cielo.

Project Trip Distribution and Assignment

Trip distribution and assignment is the process of identifying the probable destinations, directions, or traffic routes that project related traffic will likely affect. Trip distribution and assignment for this study was based on review of local and regional traffic patterns in the area, street network geometry, and location of project access points. Figure 6 shows the project distribution for the surrounding circulation network and the increase in daily trips that the proposed project would add to the circulation network.



LEGEND

30%

➔

Project Trip Distribution

104

Daily Projects Trips

★

Project Site

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Figure 6

Project Trip Distribution and Assignment



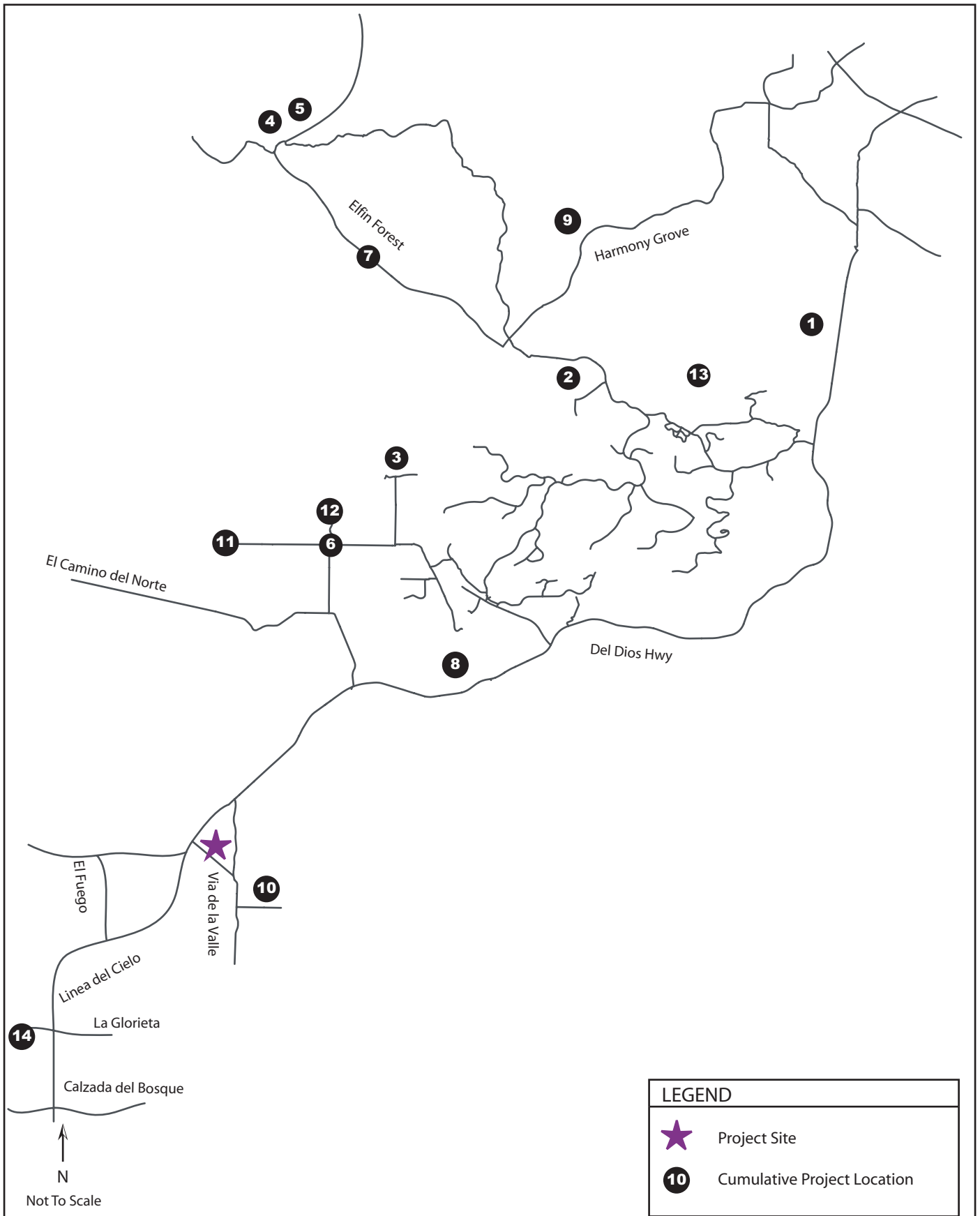
5.0 Existing Plus Cumulative Conditions

This section documents existing plus cumulative conditions in the project site vicinity. The existing plus cumulative analysis takes into account existing traffic volumes, plus the traffic associated with other planned developments (or cumulative projects) in the study area, plus the traffic associated with the proposed project. Table 5 summarizes other planned developments (open and closed discretionary projects), while Figure 7 graphically displays the cumulative project locations.

Table 5
Trip Generation for Other Cumulative Projects

#	Project APN	Land Use	Intensity	Trip Rate	Per	Daily Trips	AM Trips	In	Out	PM Trips	In	Out
1	TM 4909 R1RP2 Rancho Cielo	SF Detached	14	12	DU	168	13	4	9	17	12	5
2	TM 5182 RPL4 Cielo Del Norte	SF Detached	187	12	DU	2,244	180	54	126	224	157	67
3	TM 5260 Santa Fe Creek	SF Detached	56	12	DU	672	54	16	38	67	47	20
4	University Commons	Multi-use				14,772	1,182	355	827	1,477	1,034	443
5	San Elijo Ranch	Multi-use				44,001	3,520	1,056	2,464	4,400	3,080	1,320
6	TM 5148 Rancho Pacifica	SF Detached	12	12	DU	144	12	3	8	14	10	4
7	Garrison Tm TM5277 RP2	SF Detached	11	12	DU	132	11	3	7	13	9	4
8	Pacifica Enterprises	SF Detached	12	12	DU	144	12	3	8	14	10	4
9	Dr. Su Gao SFD Project & Whispering Hills	SF Detached	47	12	DU	564	45	14	32	56	39	17
10	TM 5201 RP2 Minis Tirith	SF Detached	16	12	DU	192	15	5	11	19	13	6
11	MUP 91-019 W1	SF Detached	11	12	DU	132	11	3	7	13	9	4
12	TM 5270 (TM 5239 –Bridges)	SF Detached	216	12	DU	2,592	207	62	145	259	181	78
13	Rancho Cielo	SF Detached	230	12	DU	2,760	221	66	155	276	193	83
14	La Glorieta	SF Detached	1	12	DU	12	1	0	1	1	1	0
Totals						68,529	5,484	1,644	3,838	6,850	4,795	2,055

Source: SANDAG (Not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002).



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Figure 7

Cumulative Project Locations

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Daily Roadway Segment Performance

Table 6 summarizes the results of existing plus cumulative service levels on study area roadway segments and the proposed project's significance of impact based on the adopted thresholds for incremental increases in the volume-to-capacity ratios (v/c). The amount of acceptable increase in v/c depends on the forecast level of service (the worse the level of service, the smaller the allowable increase in v/c). Figure 8 graphically presents the results of this analysis.

As shown in Table 6, under existing plus cumulative conditions, all study segments operate at LOS C or better with the addition of project traffic. Therefore, no cumulative or direct project impacts were identified.



Table 6
Existing plus Cumulative Daily Roadway Segment Conditions with Project

			<i>Existing</i>			<i>Cumulative</i>	<i>Project</i>	<i>Existing + Cumulative + Project</i>			<i>Comparison</i>	
<i>Roadway Segment</i>	<i>Near-Term Classification / Lanes</i>	<i>LOSE Capacity</i>	<i>ADT Volume</i>	<i>Volume/ Capacity Ratio</i>	<i>LOS</i>	<i>ADT Volume</i>	<i>ADT Volume</i>	<i>ADT Volume</i>	<i>Volume/ Capacity Ratio</i>	<i>LOS</i>	<i>Increase in V/C</i>	<i>Sig²</i>
Via De Santa Fe between Via De La Valle and Camino Selva	Rural Light Collector / 2	16,200	4,302	0.27	C	0	3	4,305	0.27	C	0.000	No
Via De Santa Fe between Camino Selva and Paseo Arbolado	Rural Light Collector / 2	16,200	3,709	0.23	B	0	12	3,721	0.23	B	0.001	No
Via De Santa Fe between Paseo Arbolado and Paseo Delic	Rural Light Collector / 2	16,200	3,709	0.23	B	0	48	3,757	0.23	B	0.003	No
La Granada between Paseo Arbolado and Paseo Delicias	Rural Light Collector / 2	16,200	5,961	0.37	C	884	48	6,893	0.43	C	0.003	No



Peak Hour Intersection Performance

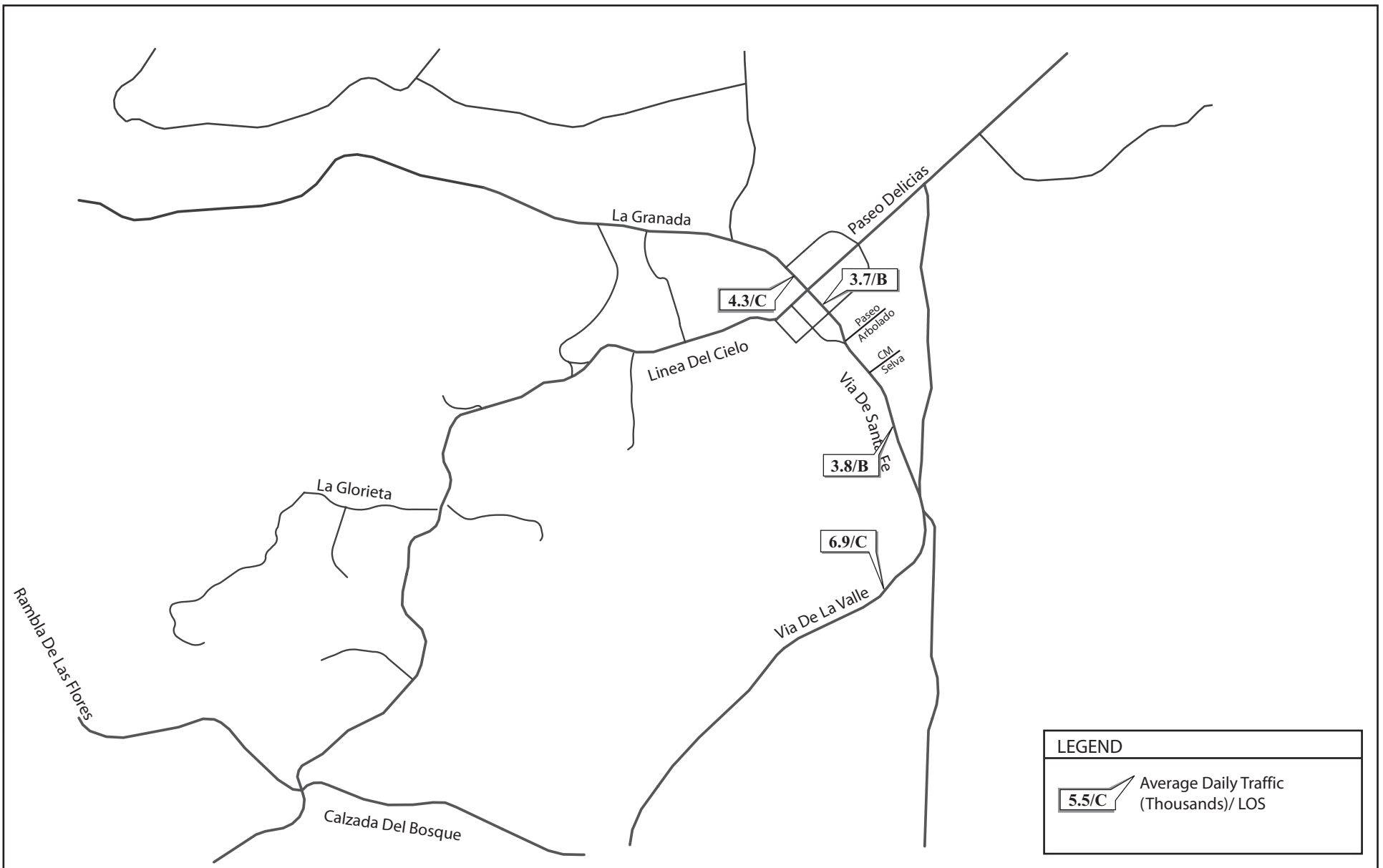
Table 7 summarizes the results of existing plus cumulative service levels at unsignalized study intersections and the proposed project's significance of impact based on the adopted thresholds for incremental increases in intersection delay and allowable increases in peak hour trips per critical movement. Figure 9 graphically presents the results of this analysis.

As shown in Table 7, under existing plus cumulative conditions, all study intersections operate at LOS D or better with the addition of project traffic, for the AM and PM peak hours except for the intersection of Vie De Santa Fe at Via De La Valle, which operates at LOS E in the Existing AM scenario and LOS F in the Existing + Cumulative + Project AM scenario. The project generates only 1 trip during the AM peak hour and 1 trip during the PM peak hour.

Table 7
Existing plus Cumulative Peak Hour Intersection Conditions

<i>Intersection</i>	<i>Existing</i>		<i>Existing + Cumulative + Project</i>	
	<i>Intersection Delay (sec.)</i>	<i>Level of Service</i>	<i>Intersection Delay (sec.)</i>	<i>Level of Service</i>
<i>AM Peak Hour</i>				
Via De Santa Fe at Via De La Valle*	45.6	E	67.7	F
Via De Santa Fe at Camino Selva*	14.3	B	14.5	B
Via De Santa Fe at Paseo Arbolado*	12.2	B	12.2	B
Via De Santa Fe at Paseo Delicias*	18.1	C	18.3	C
La Granada at Paseo Delicias*	12.1	B	12.2	B
<i>PM Peak Hour</i>				
Via De Santa Fe at Via De La Valle*	14.5	B	15.7	C
Via De Santa Fe at Camino Selva*	12.5	B	12.6	B
Via De Santa Fe at Paseo Arbolado*	14.7	B	14.7	B
Via De Santa Fe at Paseo Delicias*	13.1	B	13.2	B
La Granada at Paseo Delicias*	11.8	B	11.9	B

*Unsignalized intersection

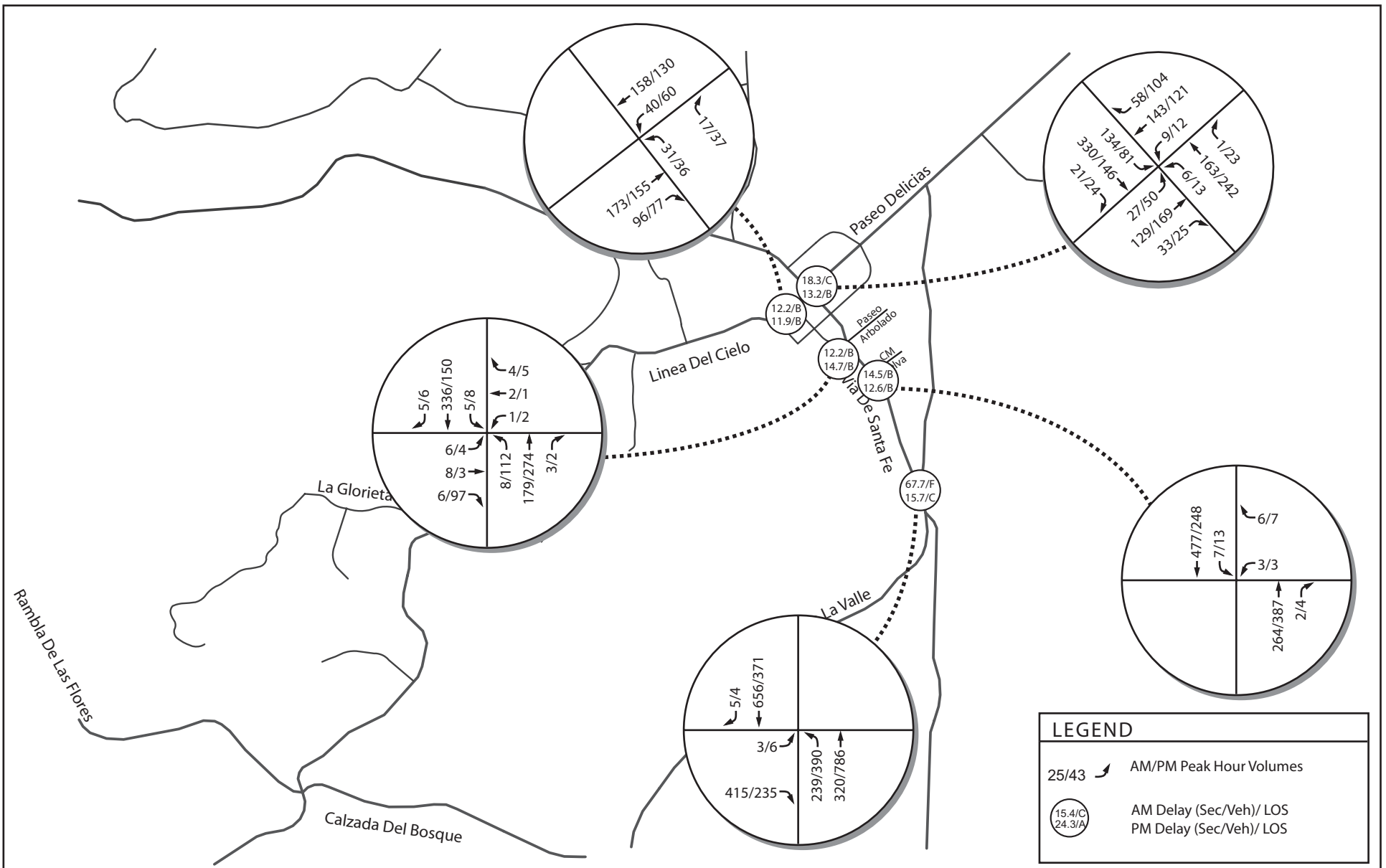


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Figure 8

Existing plus Cumulative Daily Roadway
Segment Conditions with Project

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Figure 9

Existing Plus Cumulative Peak Hour
Intersection Conditions with Project

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6.0 Summary of Results

The Camino Selva residential project is comprised of six detached residential units, which would generate approximately 60 daily trips, with 4 occurring in the AM peak hour and 6 occurring in the PM peak hour. The project is located off of Via De Santa Fe, just south of the village area. All the Six units of the project have direct access from Camino Selva. The project would access the regional street network via the intersection of Via De Santa Fe and Via De La Valle.

Existing Conditions

- Under existing conditions, all study segments operate at LOS C or better.
- Under existing conditions, all study intersections operate at LOS C or better for both AM and PM peak hours; except for Via De Santa Fe at Via De La Valle, which operates at LOS E in the AM peak hour.

Existing Plus Cumulative Conditions

The existing plus cumulative analysis takes into account existing traffic volumes, plus the traffic associated with other planned developments (or cumulative projects) in the study area, plus the traffic associated with the proposed project.

- Under existing plus cumulative conditions, all study segments operate at LOS C or better with the addition of project traffic. Therefore, no cumulative or direct project impacts were identified.

Under existing plus cumulative conditions, all study intersections operate at LOS D or better for the AM and PM peak hours except for the intersection of Via De Santa Fe at Via De La Valle, which operates at LOS F in the AM peak hour. We recommend the developer contribute to the Transportation Impact Fee (TIF) to mitigate this cumulative impact, which are identified as part of the TIF program. To mitigate the project's potential cumulative impacts it is recommended that the developer contribute to the County's Traffic Impact Fee (TIF) program based on the San Dieguito Community Fee Schedule for this use.

Sincerely,

Katz, Okitsu & Associates

J. Arnold Torma
Principal Engineer

